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Pancoast's tumor caused by diffuse large B-cell lymphoma

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A 64-year-old man with diabetes mellitus presented to our emergency department with increasing pain and numbness along the medial aspect of his right arm for 1 month. His vital signs were stable and he had no respiratory symptoms. A physical examination revealed tenderness over the right side of the upper chest wall. His breath sounds were clear. Neurologic examination revealed weakness of the intrinsic muscles of the right hand and decreased sensation along the distribution of the ulnar nerve. Laboratory tests showed a serum creatinine level of 2.2 mg/dL, potassium 3.7 mEq/L, and lactate dehydrogenase 2636 U/L. Chest radiography demonstrated a mass in the superior thoracic inlet overlapping the right clavicle, and first and second ribs (Fig. 1, arrows). A computed tomography scan revealed a solid mass in the right upper lung, without cavitation or calcification, associated with destruction of the first and second ribs (Fig. 2, arrows). Pathology and immunohistology of a specimen from a tumor biopsy revealed diffuse large B-cell lymphoma. Hydration followed by chemotherapy with rituximab, doxorubicin, vincristine, and prednisone was planned. On the 10th hospital day after the first cycle of chemotherapy, pulseless electrical activity due to severe metabolic acidosis caused by tumor lysis syndrome occurred. Advanced cardiac life support was performed, but the patient died.

Pancoast's syndrome is a tumor arising in the superior thoracic inlet. It invades adjacent structures, such as the first and second ribs or vertebral bodies, lower nerve roots of the brachial plexus, upper sympathetic chain and stellate ganglion, and the subclavian vein and artery [1]. Pancoast's syndrome is not common and is usually caused by bronchogenic carcinoma in the pulmonary apex, which is a rare location accounting for < 5% of all bronchogenic carcinomas [2]. Other causes of Pancoast's syndrome include inflammatory processes, infectious disease, and other malignancies [1]. Pancoast's syndrome secondary to diffuse large B-cell lymphoma is rare [3–6].

Clinical manifestations of Pancoast's syndrome in our case were severe pain radiating from the right shoulder to the ipsilateral medial aspect of the arm and weakness of the intrinsic muscles of the right hand, which are innervated by the ulnar nerve. Other typical symptoms of Pancoast's syndrome include Horner's syndrome and upper arm edema, which are related to invasion of the sympathetic nerve system and partial or complete occlusion of the subclavian vein, respectively.

The presence of one or more symptoms of Pancoast's syndrome in association with a radiographic shadow in the pulmonary apex

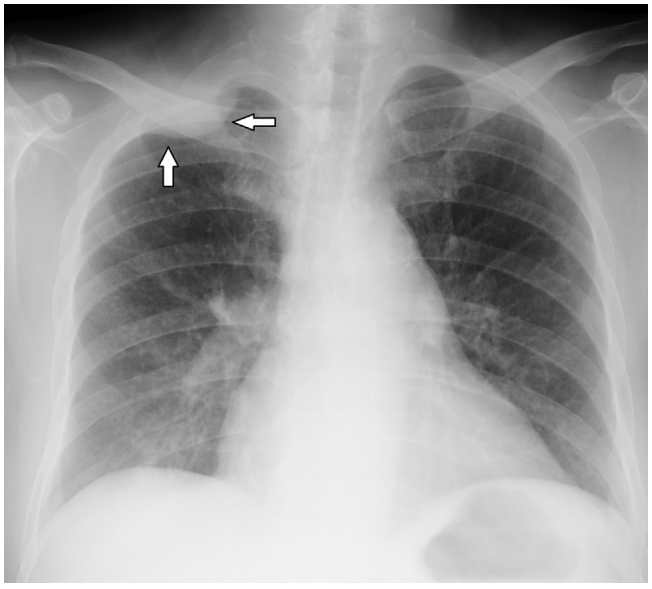

Fig. 1. Plain chest radiography reveals an occult tumor overlapping the right clavicle and first and second ribs in the pulmonary apex (arrows).

Conflict of interest: none.

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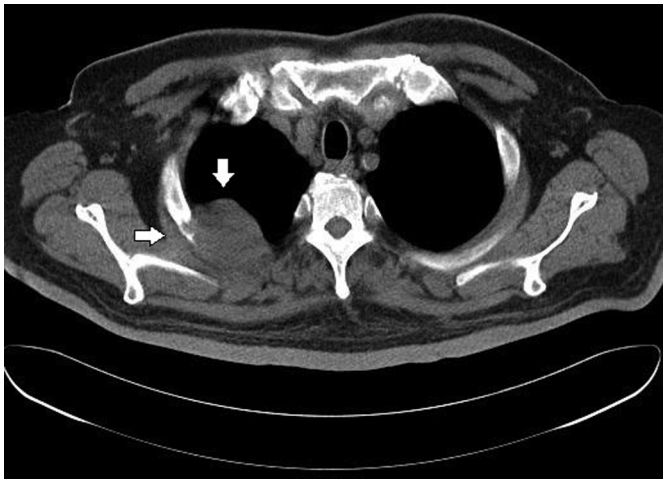

Fig. 2. Computed tomography scan reveals a solid mass in the right upper lung, without cavitation or calcification, associated with destruction of the first and second ribs (arrows).

leads to suspicion of a Pancoast tumor. The tumor can be missed in plain chest radiography, especially when it has the form of a small apical cap or apical pleural thickening, or overlaps the bony structure of the superior thoracic inlet [7]. Computed tomography scan of the chest can give more information on the nature of the apical lesion and invasion of the adjacent thoracic inlet structure [8].

Tumor lysis syndrome most frequently occurs after initiation of therapy for various malignancies. Our reported patient had many risk factors for acute tumor lysis after initiation of chemotherapy, including a creatinine level > 1.6 mg/dL, a high level of lactate dehydrogenase, and B-cell lymphoma [9].

In conclusion, we reported a rare case of Pancoast's syndrome secondary to diffuse large B-cell lymphoma. Physicians should be aware of the manifestations of Pancoast's syndrome and undertake further investigation in the presence of suggestive symptoms. Even a small suspicious tumor in the superior thoracic inlet may result in Pancoast's syndrome [6].

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